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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,006	01/15/2002	Scott M. Hartley	101-27	6356
24336	7590	07/13/2004	EXAMINER	
KEUSEY, TUTUNJIAN & BITETTO, P.C. 14 VANDERVENTER AVENUE, SUITE 128 PORT WASHINGTON, NY 11050			ZACHARIA, RAMSEY E	
			ART UNIT	PAPER NUMBER

1773

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/047,006	<b>Applicant(s)</b> HARTLEY ET AL.	
	<b>Examiner</b> Ramsey Zacharia	<b>Art Unit</b> 1773	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/15/02; 3/17/03; 9/29/03</u> | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Applicant is advised that should claim 4 be found allowable, claim 6 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).
2. Claim 11 is objected to because of the following informalities: the term "N/R" on line 3. should read --NIR--. Appropriate correction is required.
3. Claim 37 is objected to because of the following informalities: the preamble of the claim refers to the "workpiece of claim 27" but claim 27 is drawn to a method. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 1-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. The terms "strong" and "high" in claims 1, 12, and 27 are relative terms which render the claims indefinite. The terms "strong" and "high" are not defined by the claim, the specification

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does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Use of the terms "strong" and "high" render the absorption and extinction coefficient of the absorber dye at the welding wavelength indefinite.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-36 and 38-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (WO 00/20157).

Jones et al. teach a welded workpiece formed by exposing the joint region at the weld to radiation so as to melt the surface of one or both pieces at the joint, then allowing the melted material to cool and weld the workpiece together (page 1, lines 27-33). A radiation absorbing material is provided in the joint region (page 1, lines 34-36). The radiation absorbing material is an NIR dye having a high molar absorption coefficient, good solubility in the host polymer, and does not degrade to colored by-products (page 3, lines 10-20). The dyes also have high extinction coefficients (page 3, lines 29-32). The dye can be incorporated into the joint region in several ways including as part of a polymer film placed between the two pieces to be welded together or as a coating solution applied to the surface by dipping, infusion, painting or spraying

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(page 6, line 22-page 5, line 34). A suitable concentration of the dye is  $0.001\text{-}0.1\text{ }\mu\text{g}/\text{mm}^2$ , i.e.  $1\text{-}100\text{ ng}/\text{mm}^2$  (page 10, lines 16-34).

Because the radiation absorbing material in the joint region of Jones et al. appears to be the same as that used in the instant invention (i.e.  $1\text{-}100\text{ ng}/\text{mm}^2$  of an NIR dye having high absorption and extinction coefficients that degrades to a non-colored by-product) it is taken to inherently be capable of converting inbound radiant energy at a welding wavelength over about  $0.1\text{ J}/\text{mm}^2$ . Moreover, because the dye is miscible in the polymer (as evidenced by the teaching that the dye may be incorporated into a polymer film or the polymer workpiece itself), the degradation by-products should also be miscible in the polymer.

Regarding claim 9, the depth to which the dye penetrates when applied as a coating onto the surface of one of the workpieces must inherently be sufficiently small to avoid foaming during welding since Jones et al. do not teach that the welding causes foaming. Moreover, if foaming were present, the appearance of the joint would be affected. Since the welding process Jones et al. does not affect the appearance of welded joint, there can be no foaming.

Regarding claim 10, the limitations of this claim are met since the claim is directed to the workpiece which contains, at most, only a residual amount of solvent. Therefore, the concentration of the dye in the solvent prior to deposition does not affect the final product since the solvent is evaporated off during the formation of the product.

Regarding claim 21, the transmission through the joint region of Jones et al. at the welding wavelength is lower than the optical transmission through the bulk portions because the joint region is designed to absorb energy at the welding wavelength and the bulk portions are designed to be optically transparent. The radiation absorbing material in the joint region of Jones

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et al. is taken to inherently be capable of converting the radiation into thermal energy via successive electronic-to-thermal and chemical-to-thermal conversion activities because it is designed to heat up the joint region and the material appears to be the same as used in the instant invention (i.e. 1-100 ng/mm<sup>2</sup> of an NIR dye having high absorption and extinction coefficients that degrades to a non-colored by-product).

Regarding the optical properties recited in claims 14-21, since the material used by Jones et al. appears to be the same as that used in the instant invention (i.e. 1-100 ng/mm<sup>2</sup> of an NIR dye having high absorption and extinction coefficients that degrades to a non-colored by-product), it should inherently have the same optical properties.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (WO 00/20157).

Jones et al. teach all the limitations of claim 37, as outlined above, except for the concentration of the dye in the coating solution.

However, Jones et al. do teach that the dye may be applied to the joint region as a coating composition to a final coating weight of 1-100 ng/mm<sup>2</sup>. The concentration of the coating

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solution affects the coating weight of the final product. That is, the concentration is a results effective variable.


Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the concentration of dye in the coating solution, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2nd 272, 205 USPQ 215 (CCPA 1980).

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (571) 272-1516. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ramsey Zacharia**  
Primary Examiner  
Tech Center 1700